C 39.202 : P83/11

UNITED STATES PORT DEVELOPMENT EXPENDITURE SURVEY

PENNSYLVANIA STATE UNIVERSITY
MAR 0 1 1980
DOCUMENTS COLLECTION

U.S. DEPARTMENT OF COMMERCE
Maritime Administration
Office of Port and Intermodal Development

UNITED STATES PORT DEVELOPMENT EXPENDITURE SURVEY

U.S. DEPARTMENT OF COMMERCE
Maritime Administration
Office of Port and Intermodal Development

January 1980

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402

Stock Number 003-007-00100-2

TABLE OF CONTENTS

CHAPTER		PAGE
	LIST OF TABLES	iii
	FOREWORD	v
	SUMMARY	vi
I.	INTRODUCTION	
	A. History of Survey	1
	B. Survey Methodology	1
	C. Survey Response	2
	D. Report Format	3
II.	TRENDS IN PUBLIC CAPITAL EXPENDITURES FOR PORT DEVELOPMENT	
	A. National Summaries	4
	B. Leading Port Expenditures Summaries	7
III.	METHODS OF PUBLIC PORT FINANCING	
	A. Port Revenues	15
	B. General Obligation Bonds	15
	C. Revenue Bonds	16
	D. State and Local Aid	16
	E. Federal Aid	16
	F. Financing Trends	17
IV.	CAPITAL DEVELOPMENT EXPENDITURES BY PORT	
	A. North Atlantic	22
	B. South Atlantic	26
	C. Gulf Coast	29
	D. Pacific Coast	32
	E. Alaska, Hawaii, and Puerto Rico	37
	F. Great Lakes	40

LIST OF TABLES

NUMBER	TITLE	PAGE
1	Comparison of Current Survey Port Development Expenditures with Total Outlays since 1946	5
2	U.S. Port Capital Expenditures by Region and Facility Type (1973-1978)	6
3	Public Port Development Expenditures (1973-1978)	7
4	Proposed U.S. Port Capital Expenditures by Region and Facility Type (1979-1983)	8
5	Proposed Port Development Expenditues (1979-1983)	9
6	Leading 10 Ports in Expenditures for Conventional General Cargo Facilities (1973-1978)	10
7	Leading 10 Ports in Proposed Expenditures for Conventional General Cargo Facilities (1979-1983)	10
8	Leading 10 Ports in Expenditures for Specialized General Cargo Facilities (1973-1978)	11
9	Leading 10 Ports in Proposed Expenditures for Specialized General Cargo Facilities (1979-1983)	12
10	Leading 10 Ports in Expenditures for Bulk Cargo Facilities (1973-1978)	13
11	Leading 10 Ports in Proposed Expenditures for Bulk Cargo Facilities	14
12	Representative Financing Methods of U.S. Public Ports	18
13	North Atlantic Ports (1973-1978)	23
14	North Atlantic Ports (1979-1983)	24
15	South Atlantic Ports (1973-1978)	27
16	South Atlantic Ports (1979-1983)	28
17	Gulf Coast Ports (1973-1978)	30
18	Gulf Coast Ports (1979-1983)	31
19	Pacific Coast Ports (1973-1978)	34
20	Pacific Coast Ports (1979-1983)	36

LIST OF TABLES (cont.)

NUMBER	TITLE	PAGE
21	Alaska, Hawaii, and Puerto Rico Ports (1973-1978)	38
22	Alaska, Hawaii, and Puerto Rico Ports (1979-1983)	39
23	Great Lakes Ports (1973-1978)	42
24	Great Lakes Ports (1979-1983)	44

FOREWORD

As part of its statutory responsibility to promote the development of efficient ports, the Maritime Administration conducted this survey to compile and analyze capital expenditure data for marine terminal facilities in the principal ports of the United States from 1973-1978, including projections through 1983.

By utilizing data from previous surveys since 1946, the end product of this effort is a 38-year picture of past and future capital commitments on the part of the port industry in the United States to provide the terminal port facilities to serve ocean shippers. Consideration is also given to the methods by which these capital requirements are financed. We hope the results of this survey will assist individual ports in measuring their port development progress and planning future terminal expansion programs.

All of the expenditure data contained in this survey were derived from information submitted by individual public ports. We would like to thank those local public officials who found the time to provide the important port development expenditure information.

SUMMARY OF FINDINGS

- This survey reveals that approximately $5 billion has been invested in the construction and modernization of pier and wharf facilities in U.S. ports in the 33 years since the end of World War II. The rate of expenditures for these purposes has increased remarkably in the last six years.

- Between 1973-1978, U.S. ports expended approximately $1.6 billion to expand and improve marine terminal capacity. Plans indicate an estimated $3.4 billion will be spent by U.S. ports for cargo handling facilities from 1979-1983.

- A large part of the increase in port development expenditures can be attributed to the continued commitments toward containerization and other unitized forms of cargo handling which have transformed a traditionally labor-intensive industry to one of capital intensiveness.

- While there has been a general shift to container terminal development in several concentrated coastal areas, the construction of new or modernized conventional general cargo facilities continues. At many ports, efficient breakbulk facilities represent significant local investments in cargo handling capability.

- Bulk cargo facilities are often the result of private investment. Large investments are projected for 1979-1983 with particular emphasis on offshore crude oil receiving facilities off the Gulf Coast.

- Regionally, the North Atlantic group of ports lost their traditional dominance of total U.S. development expenditures. The Gulf, South Atlantic, and Great Lakes groups of ports displayed major relative increases in development expenditures during 1973-1978 over previous survey periods.

- There has been a general trend away from the traditional port dependence on general obligation bonds for developmental financing. Increases in revenue bonding, re-investment of port revenues and Federal aid have characterized public port financing during 1973-1978.

Chapter I

INTRODUCTION

As the volume of domestic and international waterborne commerce increases and the technology of oceanborne carriers advances towards more efficient and economical transportation, the port communities of the United States and Puerto Rico likewise continue to adjust, rehabilitate, and develop the necessary supporting terminal facilities to transfer cargoes between ship and shore. This survey, similar to six earlier port expenditure reports, attempts to quantify the degree of financial commitment U.S. ports have made since the end of World War II.

A. HISTORY OF SURVEY

The first Port Development Expenditure Survey was issued by the Port Authority of New York and New Jersey in 1956 and covered the 10-year post - World War II period from 1946 through 1955. The Port Authority subsequently published three updated versions of its original survey in 1958, 1960 and 1962.

In 1965 the American Association of Port Authorities published an additional update of the survey which was prepared with the assistance of the Maritime Administration (MarAd). This was followed by a 1974 MarAd survey. The methodology and formatting contained in these two surveys as well as this current report were essentially the same as that in all previous survey reports. Therefore, this report is able to present cumulative expenditure totals from the beginning of 1946 to the end of 1978, thus portraying a 33-year history of the capital terminal investments made by the port communities of the United States. In addition, projected port development expenditures for 1979-1983 are also included in this report.

The publication of this report represents the first time an attempt has been made to include information on sources and trends of public port financing as well as expenditure data. This section is intended to supplement the information on the amounts and purposes of the expenditures.

B. SURVEY METHODOLOGY

The data used in this survey were solicited from individual ports by means of a four-part mail questionnaire which requested information on development expenditures by type of facility, year completed, total dollar amount invested, physical description of facility, type of financing, and principal owner.

The ports were requested to submit development expenditures from January 1, 1973 to December 31, 1978. This data included all known funds actually spent or positively committed for marine terminal development during this six-year period. Projected expenditures included all funds authorized or planned for port construction during the period from January 1, 1979 through December 31, 1983.

This data did not include funds which were spent to acquire land or existing facilities, deepen channels, dry dock or repair vessels, or construct piers for pleasure boat facilities. Expenditures for improvements of rail or highway connections to terminal or berthing areas were not considered. Administrative and other operating expenses were also omitted.

As in the 1974 MarAd survey, development expenditures were divided into three principal categories; (1) conventional general cargo facilities, (2) specialized general cargo facilities (container, Lash/Seabee and roll-on/roll-off) and (3) bulk facilities (dry and liquid).

Conventional general cargo facilities include piers, wharves and transit sheds used primarily to accommodate break-bulk general cargo vessels. Specialized general cargo facilities include piers and wharves used primarily to load and discharge either container, Lash/Seabee or roll-on/roll-off (Ro/Ro) vessels, as well as special purpose terminal handling equipment, such as gantry cranes, straddle carriers, etc., or other related terminal service structures, such as cargo consolidation and distribution sheds.

The dry and liquid bulk facilities classification includes piers and wharves used primarily to handle bulk cargo vessels. Also included in this category are pierside grain elevators, liquid storage tanks and specialized loading/discharging equipment for handling dry and liquid bulk commodities.

Each of these three principal categories is further broken down into two secondary groupings, "new construction" and "modernization/rehabilitation." The "new construction" (NEW) classification includes only work that is completely new or reconstruction projects that create completely new berths. The "modernization/rehabilitation" (M-R) grouping encompasses all additions, improvements, and restorative work to existing facilities which do not result in additional berths.

The cost data collected are expenditures made by public ports during the 1973-1978 period. The cumulative cost figures, thus, do not represent dollar totals for any one year but rather expenditures made during the subject six-year period. This lack of price index manipulation yields totally historical costs and not current replacement prices for port construction.

C. SURVEY RESPONSE

The four regional offices of the Maritime Administration were responsible for soliciting the expenditure data and preparing preliminary investment assessments on the ports within their respective areas. In those cases where no reply was received, cumulative expenditure totals from previous survey years are depicted.

The vast majority of capital outlays presented in this report are the expenditures of public port entities. It has been estimated that private investments in marine terminals, principally for liquid and dry bulk terminals, essentially match the expenditures of local port agencies in the United States. For this current survey, approximately 110 public port agencies were requested to submit expenditure information. Ninety-five ports responded to the survey, which equates to a very representative 89 percent response rate.

D. REPORT FORMAT

The survey results are presented in the three following chapters of the report. Chapter II presents trends in public capital expenditures for port development by depicting national summaries and leading port expenditure totals for various types of cargo handling terminals. Chapter III addresses the critical issues of public port financing by describing the primary funding sources and trends in public financing methods. Chapter IV concludes the report with regional presentations of port-by-port expenditures between 1973-1978 and proposed through 1983. In total, 24 tables provide supporting data to the descriptions of U.S. port development expenditures.

Chapter II

TRENDS IN PUBLIC CAPITAL EXPENDITURES FOR PORT DEVELOPMENT

In order to provide adequate transfer capacity to handle an increasing volume of trade, U.S. public ports have made significant capital investments in port facilities. The total expenditures by public port agencies on construction and modernization of marine terminal facilities during the 33-year period since World War II (1946-1978) were approximately $5 billion. This does not include several billions of dollars that have been invested by private enterprise during the above period in marine terminal facilities which are essential components of industrial complexes.

Between 1973 and 1978 alone, U.S. public ports allocated over $1.6 billion to the construction and modernization of commercial shiphandling facilities. This figure represents approximately 36 percent of the total amount spent since 1946. In addition, the overall yearly average expenditures of local port authorities continue to reach new record levels. For instance, in comparison with $65 million during the 10-year period immediately following World War II, the average annual port development outlay rate has risen to over $270 million for the 1973-1978 period. While a portion of this increase can be attributed to escalating costs due to inflation, it is evident that capital investments in port development have increased substantially since World War II. This is due to the increasingly capital-intensive nature of modern port facilities.

A. NATIONAL SUMMARIES

Tables 1-3 depict national summaries of port development expenditures by region. Expenditures for the 1973-1978 period are compared with the total post World War II period in Table 1. As noted, while representing only approximately 15 percent in terms of duration, the present survey period accounted for expenditures ranging from 18 percent to 53 percent of the port development expenditures made since 1946.

Development expenditures by facility type are depicted in Table 2. Regional comparisons are offered with total expenditures displayed for the 1973-1978 survey period. By cargo facility type, 16 percent of the $1.6 billion was spent for conventional general cargo facilities, 36 percent for specialized general cargo and 49 percent for liquid and dry bulk cargo facilities. There were significant variations between the regional groups of ports.

Table 3 illustrates the division between expenditures for strictly new port construction and costs of modernization and rehabilitation. The relationships remained fairly constant throughout the regions with a national average of 78 percent of development expenditures going towards new construction and 22 percent for facility modernization.

Proposed expenditures by U.S. ports for the years 1979-1983 are summarized in Tables 4 and 5. For this five-year span, an estimated $3.4 billion will be expended to meet the requirements of expected growths in international trade.

Table 1

COMPARISON OF CURRENT SURVEY PORT DEVELOPMENT EXPENDITURES WITH TOTAL OUTLAYS SINCE 1946
(Thousands of Dollars)

Region	Jan. 1946 - Dec. 1978	Jan. 1973 - Dec. 1978	Percent of Total Capital Outlay	Percent of Total Time Interval
North Atlantic	1,549,196	285,790	18	15.6
South Atlantic	375,692	152,891	41	15.6
Gulf Coast	1,185,906	626,765	53	15.6
Pacific Coast	1,074,840	330,284	31	15.6
Alaska, Hawaii & Puerto Rico	213,496	45,061	21	15.6
Great Lakes	465,506	189,864	40	15.6
Total U.S.	4,864,636	1,630,655	34	15.6

Table 2

U.S. PORT CAPITAL EXPENDITURES BY REGION AND FACILITY TYPE (1973-1978)
(Thousands of Dollars)

Region	Conventional General Cargo	Percent Reg'l Nat'l Total	Specialized General Cargo	Percent Reg'l Nat'l Total	Liquid & Dry Bulk Cargo	Percent Reg'l Nat'l Total	Total Reg'l /Nat'l	Percent of Grand Total
North Atlantic	61,716	22	199,537	70	24,537	8	285,790	18
South Atlantic	46,646	31	74,555	49	31,690	21	152,891	9
Gulf Coast	72,557	11	78,709	13	475,499	76	626,765	38
Pacific Coast	64,572	19	184,194	56	81,518	25	330,284	20
Alaska, Hawaii & Puerto Rico	3,030	7	40,221	89	1,810	4	45,061	3
Great Lakes	6,315	3	3,593	2	179,956	95	189,864	12
U.S. Total	254,836	16	580,809	36	795,010	49	1,630,655	100

Table 3

PUBLIC PORT DEVELOPMENT EXPENDITURES
1973-1978
(Thousands of Dollars)

Port Area	New	Percent	M&R	Percent	Total
North Atlantic	234,494	82	51,296	18	285,790
South Atlantic	133,270	87	19,621	13	152,891
Gulf Coast	553,360	88	73,405	12	626,765
Pacific Coast	233,743	71	96,541	29	330,284
Alaska, Hawaii & Puerto Rico	35,033	78	10,028	22	45,061
Great Lakes	81,355	43	108,519	57	189,864
Total U.S.	1,271,255	78	359,410	22	1,630,655

While large capital expenditures are envisioned for crude oil importing terminals on the Gulf and Pacific Coasts, proposed expenditures for specialized general cargo facilities represent a substantial portion of total planned port development projects. Table 5 depicts proposed development expenditures for the purposes of new construction vs. modernization and rehabilitation. Nationally, new construction is expected to account for approximately 91 percent of all port development expenditures during the next five-year period.

B. LEADING PORT EXPENDITURES SUMMARIES

This section presents the leading 10 ports in development expenditures by cargo facility type. Tables 6 and 7 illustrate the leading ports for expenditures in conventional general cargo facilities. The ports for both past and proposed expenditures in the general cargo facilities category are geographically dispersed. The leading port for the survey years of 1973-1978 was the Port of Baltimore with $29.4 million spent. New Orleans and the Georgia ports lead the proposed expenditures category with over $30 million planned by each during 1979-1983.

While expenditures for breakbulk facilities remain significant, during the two decades following World War II the capital outlays of port agencies were concentrated predominately on conventional general cargo facilities. Since 1966, however, the general trend has been increasingly towards containerization, particularly in the North Atlantic and Pacific Coast regions.

Table 4

PROPOSED U.S. PORT CAPITAL EXPENDITURES BY REGION AND FACILITY TYPE (1979-1983)
(Thousands of Dollars)

Region	Conventional General Cargo	Percent Reg'l Nat'l Total	Specialized General Cargo	Percent Reg'l Nat'l Total	Liquid & Dry Bulk Cargo	Percent Reg'l Nat'l Total	Total Reg'l /Nat'l	Percent of Grand Total
North Atlantic	48,105	16	170,126	58	75,334	26	293,565	9
South Atlantic	47,288	21	170,940	77	4,887	2	223,115	7
Gulf Coast	100,285	5	135,153	7	1,723,018*	88	1,958,456	58
Pacific Coast	92,593	13	311,896	45	294,356**	42	698,845	21
Alaska, Hawaii & Puerto Rico	5,993	15	33,696	85	0	0	39,689	1
Great Lakes	7,397	5	30,247	19	120,242	76	157,886	5
Total U.S.	301,661	9	852,058	25	2,217,837	66	3,371,556	100

* Includes Louisiana Offshore Oil Port and Texas Deepwater Port
** Includes proposed SOHIO Terminal Project in Long Beach, CA which has been abandoned since survey was undertaken.

Table 5

PROPOSED PORT DEVELOPMENT EXPENDITURES
(1979-1983)
(Thousands of Dollars)

Port Area	New	Percent	M&R	Percent	Total
North Atlantic	272,950	93	20,615	7	293,565
South Atlantic	218,058	98	5,057	2	223,115
Gulf Coast	1,877,123	96	81,333	4	1,958,456
Pacific Coast	555,211	79	143,634	21	698,845
Alaska, Hawaii & Puerto Rico	28,706	72	10,983	28	39,689
Great Lakes	109,330	69	48,556	31	157,886
Total U.S.	3,061,378	91	310,178	9	3,371,556

Because of the capital-intensive nature of containerization, it is more costly to construct a modern container marine terminal than a more labor-intensive breakbulk facility. Containerized port terminal facilities include not only a wharf or pier but also specialized handling equipment such as container cranes, straddle carriers, portainers and other related terminal service requirements. Included in the related terminal service category are cargo consolidation/distribution sheds and sizable back-up areas.

The estimated construction costs, for example, of a new container terminal with 900 linear feet of berthing space, a 40-ton gantry crane and 20-acres of paved back-up area range between $9-17 million. These average container terminal development costs are reflected in total expenditures for specialized general cargo facilities which has totalled over $1 billion since 1966 and $580 million since 1973.

Tables 8 and 9 show the leading 10 U.S. ports in expenditures for specialized general cargo facilities. It is interesting to note that these 10 ports accounted for a significant portion (65 percent) of total U.S. expenditures for these types of facilities. While the traditional container handling ports of New York/New Jersey, Oakland, Houston and other North Atlantic, Pacific and Gulf Coast ports lead the way in expenditures since 1973, South Atlantic ports like Charleston, S.C. and Wilmington, N.C. are planning major container terminals in the years ahead, thus reflecting the economic growth of the southeast region of the country.

Table 6

LEADING 10 PORTS IN EXPENDITURES FOR
CONVENTIONAL GENERAL CARGO FACILITIES
(1973-1978)
(Thousands of Dollars)

Port	Total	New	M&R
Baltimore	29,454	15,417	14,037
Seattle	18,090	2,734	15,356
Savannah	16,565	14,797	1,768
New Orleans	14,666	10,850	3,816
Portland, Oregon	11,500	11,500	-
Charleston	11,150	10,750	400
Tampa	9,703	9,703	-
Beaumont	9,299	7,185	2,114
Corpus Christi	9,116	8,300	816
Tacoma	8,000	5,000	3,000

Table 7

LEADING 10 PORTS IN PROPOSED EXPENDITURES
FOR CONVENTIONAL GENERAL CARGO FACILITIES
(1979-1983)
(Thousands of Dollars)

Port	Total	New	M&R
New Orleans	31,760	25,910	5,850
Georgia Ports	30,657	30,657	-
New York/New Jersey	26,000	25,000	1,000
Houston	21,100	20,000	1,100
Baltimore	17,400	17,400	-
Oakland	16,250	10,250	6,000
Long Beach	16,010	6,500	9,510
Tampa	13,460	13,460	-
Galveston	13,100	11,500	1,600
Los Angeles	13,090	115	12,975

Table 8

LEADING 10 PORTS IN EXPENDITURES FOR SPECIALIZED GENERAL CARGO FACILITIES
(1973-1978)
(Thousands of Dollars)

Port	Total	New	M&R
New York/New Jersey	106,000	106,000	-
Oakland	48,042	39,542	8,500
Houston	36,241	36,241	-
Los Angeles	32,371	31,055	1,316
New Orleans	31,766	30,479	1,287
Baltimore	29,980	28,603	1,377
Philadelphia	28,884	27,500	1,384
San Francisco	21,959	13,929	8,030
Long Beach	21,416	19,246	2,170
Norfolk	19,095	16,992	2,103
Top 10 Total	375,754	349,587	26,167
Percent of Top 10 Total	100	93	7
U.S. Total	580,809	521,915	58,894
Percent of U.S. Total	65	67	44

Table 9

LEADING 10 PORTS IN PROPOSED EXPENDITURES FOR
SPECIALIZED GENERAL CARGO FACILITIES
(1979-1983)
(Thousands of Dollars)

Port	Total	New	M&R
New Orleans	77,404	61,904	15,500
Charleston	66,000	66,000	-
New York/New Jersey	64,700	62,700	2,000
Long Beach	62,610	18,760	43,850
Seattle	58,523	57,751	772
Los Angeles	56,546	51,325	5,221
Miami	51,540	51,540	-
Houston	40,249	40,249	-
Oakland	36,250	36,250	-
Wilmington, N.C.	29,400	29,400	-
Top 10 Total	543,222	475,879	67,343
Percent of Top 10 Total	100	88	12
U.S. Total	852,058	740,744	111,314
Percent of U.S. Total	64	64	60

The leading 10 ports in expenditures for bulk cargo facilities are shown in Tables 10 and 11. Known investments of private enterprise are included in these summaries. LOOP, Inc., for example, is a consortium of oil companies that have expended funds for the construction of the country's first large offshore deepwater oil port located near the coast of Louisiana. It should also be noted that the proposed funds appearing in Table 11 for Long Beach include estimates for the SOHIO oil terminal project, the plans for which have recently been abandoned.

Table 10

LEADING 10 PORTS IN EXPENDITURES FOR
BULK CARGO FACILITIES
(1973-1978)
(Thousands of Dollars)

Port	Total	New	M&R
LOOP*	325,000	325,000	-
Duluth/Superior	133,500	46,500	87,000
Mobile	44,347	18,987	25,360
Galveston	37,000	37,000	-
Portland, Oregon	31,000	17,000	14,000
Tampa	26,036	26,036	-
Lorain	18,500	18,500	-
Albany	18,000	18,000	-
Tacoma	16,000	16,000	-
Long Beach	13,639	-	13,639

* Louisiana Offshore Oil Port

Table 11

LEADING 10 PORTS IN PROPOSED EXPENDITURES
FOR BULK CARGO FACILITIES
(1979-1983)
(Thousands of Dollars)

	Total	New	M&R
Texas Deep Water*	1,200,000	1,200,000	-
New Orleans	221,500	200,000	21,500
Long Beach**	190,600	146,400	44,200
LOOP*	177,000	177,000	-
Galveston	54,500	54,500	-
Portland, Oregon	39,800	38,000	1,800
New York/New Jersey	39,500	38,500	1,000
Toledo	35,250	35,250	-
San Francisco	35,000	35,000	-
Duluth/Superior	30,000	30,000	-

* Offshore Oil Ports
** Includes estimates for abandoned SOHIO oil terminal project

Chapter III

METHODS OF PUBLIC PORT FINANCING

In addition to collecting data on development projects, the survey questionnaires gathered information on the methods by which these capital requirements were financed. This section addresses the basic tools of public port financing and then presents the trends for representative public port investment during the 1973-1978 survey period.

Public ports in the United States use a variety of capital funding methods and services for financing new facilities, carrying out needed acquisitions, expansion, and improvements, and for retiring outstanding indebtedness. The degree of freedom which a port has in financing its requirements depends largely on its political make-up and structure; degree of autonomy in raising and utilizing capital granted by the controlling governmental body; financial position in terms of assets and investments; support by the local community; and its overall reputation.

The bulk of public financing for pier, wharves, buildings and structures is obtained through the issuance of bonds by the port authority or other governing public body. Other primary sources of public financing are port revenues and local, state or Federal Government grants. These traditional methods are briefly described below.

A. PORT REVENUES

Revenues of port authorities are derived from marine terminal dues, terminal rates, services and charges, rentals and leases, etc. In the case of the multi-purpose transportation/public authority, earnings from other facilities (bridges, tunnels, airports, etc.) may be reinvested in marine terminals as a means of cross-subsidy. Accumulated port revenues may be employed to acquire new marine facility development. Quite often, the purchases are smaller than bond funding acquisitions. In total, however, the dependence on revenue financing is signicant and for many reasons is the preferred funding alternative for a self-sufficient conscience port industry.

B. GENERAL OBLIGATION BONDS

The sale of general obligation bonds is a traditional mechanism for the public financing of large port development projects. The state, county or municipality, when acting as the legislative parent of the port authority, and as issuer of general obligation bonds, is required to provide the collateral security by pledging its full faith and credit. The payment for these kinds of bonds is the responsibility of the issuer which is payable from and primarily secured by ad valorum taxes upon all of the taxable property within the boundaries of the issuer, within limitation of rate or amount. The issuance of such bonds is often preceded by a voter referendum to determine the consensus of the community. Although this type of bond financing places a financial burden on the local taxpayer, its acceptance or rejection is predicated on the will of the community concerning the overall economic benefits of the new facility to be financed.

From a financial autonomy perspective, there are several unfavorable characteristics associated with general obligation bonds. Since the controlling government body assumes the indebtedness, there is an implied or real degree of control and regulation of port activities. Secondly, port financing is at the mercy of the voting public which may show a preference for more visably beneficial endeavors such as schools, parks or hospitals or for no tax-supported spending at all. And finally, an indebtedness ceiling can be placed on the parent governmental organization. Once this ceiling is reached, further funding is denied no matter how potentially lucrative the proposed investment may be.

C. REVENUE BONDS

Revenue bonds do not need voter approval, and are secured by general port income or specific port project revenues. Since revenue bonds have a higher risk factor than general obligation bonds, interest rates are usually higher. A degree of autonomy is retained in the issuance of revenue bonds while the ability to sell the bonds is related to the perceptions in the market of the port's ability to generate sufficient revenues.

Another tax-exempt bond that has been growing in popularity is the port industrial revenue bond. These bonds are only tax-exempt when used to finance certain specified facilities. Such facilities must serve or be available to the public on a regular basis for the bonds to be tax-exempt. In the case of port facilities, this requirement is satisfied if the facilities are part of a public port. Port industrial revenue bonds differ from port revenue bonds in that the former are secured by specific project revenues of an industrial sponsor or an industrial user's corporate guarantee while the latter are secured by specific port project revenues.

D. STATE AND LOCAL AID

This category relates to direct financial assistance to port development projects from state or local governments. Some public ports are administered as agencies or branches of state, county or municipal governments. In some cases, direct appropriations are granted to these port agencies in the same manner as traditional agencies such as fire, police and sanitation departments receive aid. Quite often in these cases, the operating income of these port agencies is turned over to the city or state treasury.

E. FEDERAL AID

Unlike financial assistance programs for airports, mass transit and other governmental activities, the Federal Government does not offer specific categorical grants or loans for port development or improvement. Ports as public agencies, however, are eligible and have received Federal grants. Most port Federal aid has been through related categorical programs where the applications are on a project-by-project basis.

The Economic Development Administration (EDA) has been the largest source of Federal economic assistance to ports. Since 1966, EDA has funneled approximately $350 million to local governments for port construction projects. In several

cases, these grants have been competitively significant and have served as leverage for additional investments that are financed from traditional sources.

EDA offers assistance under three programs (1) direct grants of up to 50 percent for eligible projects in designated areas (2) supplementary grants to provide additional assistance for eligible projects in severely distressed areas when applicants are unable to supply the local share; and (3) public facility loans in severely distressed areas. During the current survey period, these conventional EDA programs were supplemented by the Local Public Works Program. The LPW programs pumped approximately $6 billions into local economic development projects during 1976-1977. Several ports received LPW grants from EDA during this period.

Other agencies that have provided grants for port development projects are: Law Enforcement Assistance Administration; Farmers Home Administration; Department of Housing and Urban Development; Office of Coastal Zone Management; and Environmental Protection Agency. These additional agencies have provided a very small amount of financial assistance in comparison with the public works program of EDA.

F. FINANCING TRENDS

Table 12 depicts the public financing methods employed by some 43 representative U.S. port agencies in facility development. The figures are relative percentages by public financing source for development expenditures within the respective port areas during 1973-1978. The absolute dollar expenditures varied, of course, between port agencies. The range of individual port expenditures was from $110 million for one port to a low of $69,000 for another. The selected port average appearing at the bottom of Table 12 represents the average percentages of financial sources for the 42 port agencies in the sample.

There appears to be trends in public financing for the various regional areas. These trends reflect organizational structures and degrees of financial autonomy of the various regions. Public ports of the South Atlantic region, for example, reflect their state organization arrangements by showing a relatively high percentage in the local and state aid category. General obligation and revenue bonds were used extensively by the ports in the Gulf Coast. Revenue bonds and port revenues financed most of the facility developments in the ports of the West Coast. Federal aid from the Economic Development Administration proved to be comparatively more significant to ports in the Pacific Northwest and North Atlantic areas than in other regions.

On the average, 75 percent of the sample expenditures was financed with the combination of revenues, general obligation and revenue bonds. The remaining 25 percent was evenly divided between Federal and non-Federal Government assistance. As depicted, general obligation bonds remain the most depended upon by local public ports in financing capital developments. This reliance on general obligation bonds has declined, however, and other shifts in financing methods have occurred since the previous survey period of 1966-1972.

Table 12

REPRESENTATIVE FINANCING METHODS OF U.S. PUBLIC PORTS
FOR DEVELOPMENT EXPENDITURES
January 1973 - December 1978
(Percentages)

Port	Port Revenues	General Obligation Bonds	Revenue Bonds	Federal Aid	Local & State Aid	Total
Portland, ME				31	69	100
Portsmouth, NH		78		22		100
New York/New Jersey	93			7		100
Philadelphia, PA	5	95				100
Camden, NJ	33		46	21		100
Wilmington, DE		76		24		100
Baltimore, MD				1	99	100
Norfolk, VA	12	51	24		13	100
Newport News, VA	18	3			79	100
Wilmington, NC	7				93	100
Moorehead City, NC	32				68	100
Charleston, SC		100				100
Savannah, GA	4	94			2	100
Jacksonville, FL			100			100
Fort Pierce, FL	100					100
Everglades, FL	100					100
Palm Beach, FL	20		55		25	100
Canaveral, FL*						
Miami, FL	5		80	15		100

Table 12 (cont'd)

Port	Port Revenues	General Obligation Bonds	Revenue Bonds	Federal Aid	Local & State Aid	Total
Pensacola, FL				91	9	100
Mobile, AL	3	47	50			100
Gulfport, MS		100				100
Pascagoula, MS		100				100
Lake Charles, LA		28	68	4		100
New Orleans, LA	23	77				100
Beaumont, TX	24		76			100
Galveston, TX	8**		92			100
Houston, TX	2	83	15			100
Long Beach, CA	52		48			100
Los Angeles, CA	74		26			100
Oakland, CA	1		99			100
Richmond, CA	4		96			100
Astoria, OR				76	24	100
Everett, WA	66			33		100
Grays Harbor, WA	21	15	29	35		100
Seattle, WA	11	35	51	3		100
Anchorage, AL		50		50		100
San Juan, PR	100					100
Buffalo, NY	100					100

Table 12 (cont'd)

	Port Revenues	General Obligation Bonds	Revenue Bonds	Federal Aid	Local & State Aid	Total
Milwaukee, WS		40		54	6	100
Cleveland, OH		83		17		100
Toledo, OH			100			100
Burns Harbor, IN	23				77	100
Selected Port Average (1973-1978)	22	28	25	12	13	100
Selected Port Average (1966-1972)	17	32	24	7	15	100 (5% - other)

* Port projects funded by three sources (Port Revenues, Revenue Bonds and EDA funds) which were not broken out.

** Insurance proceeds

The comparative findings presented at the bottom of Table 12 indicate significant increases in revenue financing and assistance from the Federal Government. The former accounted for 22 percent of public financing methods while the latter represented 12 percent. Each category increased by five percent since the previous survey period.

Chapter IV

CAPITAL DEVELOPMENT EXPENDITURES BY PORT

This section presents the survey returns and cumulative totals of 33 years of development expenditures by individual U.S. ports. The tables and accompanying descriptions are divided into six regions with Alaska, Hawaii and Puerto Rico included as a survey grouping. Data is depicted by expenditures for type of cargo facility for the years 1973-1978, grand totals for 1946-1978 and proposed investments for 1979-1983.

A. NORTH ATLANTIC

Since 1946, the North Atlantic region has led all survey regional areas in port development expenditures with approximately $1.5 billion. Between 1973 and 1978, North Atlantic ports from Maine through Virginia spent $285,790,000 for marine terminal improvements. These North Atlantic expenditures represent 18 percent of the U.S. total between 1973 and 1978. Proposed development expenditures submitted by North Atlantic ports are expected to be approximately $263 million for the period 1979-1983.

The North Atlantic port range is a concentrated area for container and other specialized general cargo facilities. Seventy percent of all development expenditures during 1973-1978 were dedicated to the provision of specialized general cargo facilities. Nevertheless, these ports continued investments in conventional general cargo facilities with the majority of the $62 million being expended for modernization and rehabilitation of existing general cargo terminals. Investments in bulk cargo facilities represented only eight percent of the total. Concentration on containerization is expected to continue through 1983 as 66 percent of known future development expenditures are targeted for specialized general cargo terminals.

The Northern New England ports of Portland, Me., and Portsmouth, N.H., invested solely in conventional general cargo handling capacity. Portsmouth expects to continue this trend through 1983 with the expected investment of $2.5 million in new general cargo facilities.

The main concentration of container facilities in New England is in Boston, Mass. MASSPORT has expended $6 million during 1973-1978 and expects to spend over $17 million from 1979-1983 for new and modernized specialized general cargo facilities. In Fall River, private investment financed a new petroleum handling facility while there are plans to construct a new roll-on/roll-off platform at the State Pier for a cost of $2.25 million.

Port development expenditures in New Haven, Conn., were almost $7 million during 1973-1978. New general cargo and bulk cargo facilities represented most of the port investments. Future expenditures are planned for new capabilities to handle specialized general cargo.

Table 13
NORTH ATLANTIC PORTS
PORT DEVELOPMENT EXPENDITURES
(1973-1978)
(Thousands of Dollars)

PORT NAME	GENERAL CARGO FACILITIES			SPECIALIZED GENERAL CARGO			BULK CARGO FACILITIES			TOTAL	GRAND TOTAL
	Total	New	M.R.	Total	New	M.R.	Total	New	M.R.		1946-1978
Maine											
Portland	1,047	670	377	-	-	-	-	-	-	1,047	9,082
Searsport	-	-	-	-	-	-	-	-	-	-	35
New Hampshire											
Portsmouth	2,298	2,298	-	-	-	-	-	-	-	2,298	4,706
Massachusetts											
Boston	2,077	-	2,077	6,016	-	6,016	-	-	-	8,093	135,498
Fall River	-	-	-	-	-	-	1,756	575	1,181	1,756	3,139
Rhode Island											
Providence	-	-	-	-	-	-	-	-	-	-	4,030
Connecticut											
New Haven	3,000	2,500	500	200	50	150	3,500	3,000	500	6,700	17,212
New London	-	-	-	-	-	-	-	-	-	-	1,470
New York											
Albany	2,572	-	2,572	-	-	-	18,000	18,000	-	20,572	26,754
NY/NJ	4,250	-	4,250	106,000	106,000	-	-	-	-	110,250	705,444
Delaware River											
Philadelphia	-	-	-	28,884	27,500	1,384	-	-	-	28,884	135,367
Wilmington	7,768	780	6,988	1,760	1,040	360	1,000	-	1,000	10,528	26,575
Other Ports	4,020*	2,438	1,582	-	-	-	-	-	-	4,020	11,814
Maryland											
Baltimore	29,454	15,417	14,037	29,980	28,603	1,377	281	-	281	59,715	274,680
Cambridge	-	-	-	-	-	-	-	-	-	-	1,190
Virginia											
Alexandria	-	-	-	-	-	-	-	-	-	-	115
Chesapeake	-	-	-	-	-	-	-	-	-	-	8,870
Newport News	274	30	244	1,209	1,165	44	-	-	-	1,483	48,635
Norfolk	4,580	1,063	3,517	19,095	16,992	2,103	-	-	-	23,675	108,129
Portsmouth	376	269	107	6,393	6,104	289	-	-	-	6,769	22,469
Richmond	-	-	-	-	-	-	-	-	-	-	932
Yorktown	-	-	-	-	-	-	-	-	-	-	3,050
TOTAL NORTH ATLANTIC	61,716 (22%)	25,465	36,251	199,537 (70%)	187,454	12,083	24,537 (8%)	21,575	2,962	285,790	1,549,196

TOTAL NEW	234,494
PERCENT	82%
TOTAL M&R	51,296
PERCENT	18%

*Camden

Table 14
NORTH ATLANTIC PORTS
PROPOSED PORT DEVELOPMENT EXPENDITURES
(1979-1983)
(Thousands of Dollars)

PORT NAME	GENERAL CARGO FACILITIES			SPECIALIZED GENERAL CARGO			BULK CARGO FACILITIES			GRAND TOTAL
	Total	New	M.R.	Total	New	M.R.	Total	New	M.R.	
New Hampshire										
Portsmouth	2,500	2,500	-	-	-	-	140	-	140	2,640
Massachusetts										
Boston	-	-	-	17,677	6,000	11,677	-	-	-	17,677
Fall River	-	-	-	2,250	2,250	-	-	-	-	2,250
Connecticut										
New Haven	-	-	-	4,600	4,000	600	-	-	-	4,600
New York										
Albany	-	-	-	-	-	-	6,500	6,500	-	6,500
NY/NJ	26,000	25,000	1,000	64,700	62,700	2,000	39,500	38,500	1,000	130,200
Delaware River										
Philadelphia	-	-	-	15,000	15,000	-	10,000	10,000	-	25,000
Wilmington	-	-	-	7,654	7,654	-	-	-	-	7,654
Camden	-	-	-	-	-	-	9,194	9,091	103	9,194
Maryland										
Baltimore	17,400	17,400	-	28,000	26,400	1,600	-	-	-	45,400
Virginia										
Norfolk	2,205	-	2,205	8,410	8,410	-	-	-	-	10,615
Newport News	-	-	-	7,735	7,570	165	-	-	-	7,735
Portsmouth	-	-	-	14,100	13,975	125	-	-	-	14,100
TOTAL NORTH ATLANTIC	48,105 (16%)	44,900	3,205	170,126 (58%)	153,959	16,167	75,334 (26%)	74,091	1,243	293,565

TOTAL NEW	272,950
PERCENT	93%
TOTAL M&R	20,615
PERCENT	7%

The $18 million of private financing to construct a new petroleum facility in the Port of Albany was the largest investment in bulk cargo facilities that was reported by the North Atlantic ports. Albany expects to continue this bulk cargo emphasis through 1983 with additional expenditures of $6.5 million. The Port of Albany also improved its general cargo handling capability during 1973-1978 with modernization expenditures of $2.6 million.

The regional port complex of the Port Authority of New York and New Jersey and the City of New York continues to lead the nation in total port development expenditures. The vast portion, over $106 million, was dedicated to new container and other unitized cargo handling facilities. During the 1973-1978 period, the expenditures were centered in container facilities at Port Newark, Northeast Marine Terminal and Howland Hook Marine Terminals. Proposed port development expenditures for this regional area will also provide container handling capability. By the mid-1980's the new Red Hook container terminal and break-bulk terminal is expected to be in operation. The project is a joint venture sponsored by the Port Authority of New York and New Jersey, the State of New York and the City of New York. The project is already in progress and will cost an estimated $20 million. The eventual marine terminal complex will include 30 acres of land integrating an office building, martialing yard, container cranes and the projected capacity to handle 25,000 containers per year.

Along the Delaware River, the ports of Philadelphia, Camden and Wilmington have invested large portions of their expenditures in the area of specialized general cargo facilities and new conventional general cargo facilities. Philadelphia was the major investor in container facilities with development expenditures exceeding $28 million during 1973-1978. Philadelphia expects to continue this trend with a proposed $15 million investment in specialized general cargo facilities before 1983. Camden, N.J. and Wilmington, Del. spent funds during 1973-1978 towards new and improved conventional general cargo berths. Wilmington expects to deviate from this trend during 1979-1983 with over $7 million envisioned as specialized general cargo facility investment.

The $30 million expended in the 1973-1978 period and the proposed $45 million for 1979-1983 reflect the commitment on the part of the Maryland Port Administration to retain the Port of Baltimore as a leading container load center on the North Atlantic coast. New and improved conventional general cargo facilities also accounted for development spending in Baltimore during 1973-1978.

Similarly, the Hampton Roads ports of Virginia invested heavily in port facilities that will accommodate specialized general cargo. Norfolk led the Virginia ports with over $19 million for container facilities and $4 million to rehabilitate conventional general cargo handling capacity. Newport News and Portsmouth will join Norfolk in future spending for container handling facilities during 1979-1983.

Table 13 depicts development expenditures for North Atlantic ports during 1973-1978 and cumulative totals since 1946. Table 14 shows proposed expenditures for these ports for the years 1979-1983.

B. SOUTH ATLANTIC

Ports from North Carolina through Florida along the South Atlantic Coast have invested $376 million, since 1946, in the development of break-bulk general cargo, specialized general cargo and bulk cargo facilities. Traditionally, South Atlantic ports have placed spending emphasis on providing adequate conventional general cargo facilities. From 1958-1960, 83 percent of all South Atlantic port development expenditures went towards breakbulk facilities. For the years 1966-1972, approximately 51 percent of all development expenditures was dedicated to breakbulk facilities. The information provided by South Atlantic ports for the current survey period depict a shift in spending direction. Development expenditures for container and other unitized cargo facilities, during 1973-1978, represented approximately one-half of all port expenditures. Conventional general cargo development expenditures have fallen to 31 percent of the area port improvements.

Combined, the North Carolina ports of Morehead City and Wilmington invested roughly $20 million on port development during the survey period. Major improvements in breakbulk cargo handling, with ro/ro capability included, were the primary investments in Morehead City's Berths 6 and 7. In Wilmington, expenditures for new container handling capacity were made behind Berths 7 and 8. Significant expenditures of approximately $30 million for new container capacity are planned and authorized within the Port of Wilmington area by 1983.

The South Carolina port of Charleston has become a major East Coast container handling center. Over $17 million has been spent in Charleston during 1973-1983 and over $60 million will be spent before 1983 on new container facilities. Recent container handling investments have been concentrated in the Port's North Charleston and Columbus Street Terminals. A major expansion will be the Wando Terminal consisting of 3 berths, 4 container cranes and back-up area. Past and future improvements to the Port's breakbulk facilities are located in the Union Pier Terminal.

The Georgia Ports Authority invested over $16 million in conventional general cargo facilities, $14 million in container interchange facilities and $12 million for new bulk cargo facilities during 1973-1978. Future investments will be concentrated breakbulk facilities including warehouses and the addition of a fourth container berth. The Georgia Ports Authority plans to spend over $52 million on marine terminal improvements between 1979-1983.

The responding ports of east Florida spent a total of $45 million between 1973-1978 and approximately $127 million since 1946. The Port of Jacksonville spent approximately $9 million for specialized general cargo facilities and $5 million for export bulk cargo facilities during 1973-1978. Miami and Port Everglades invested in specialized general cargo facilities while Palm Beach and Port Canaveral made expenditures for breakbulk and bulk cargo facilities during 1973-1978. Future port investments vary in the State of Florida with, perhaps, the most ambitious taking place in Miami where the size of the port will be doubled in the near future.

Table 15
SOUTH ATLANTIC PORTS
PORT DEVELOPMENT EXPENDITURES
(1973-1978)
(Thousands of Dollars)

PORT NAME	GENERAL CARGO FACILITIES			SPECIALIZED GENERAL CARGO			BULK CARGO FACILITIES			TOTAL	GRAND TOTAL
	Total	New	M.R.	Total	New	M.R.	Total	New	M.R.		1946-1978
North Carolina											
Morehead City	7,630	7,630	-	2,600	2,600	-	-	-	-	10,230	36,800
Wilmington	2,417	780	1,637	6,935	6,935	-	-	-	-	9,352	40,613
South Carolina											
Charleston	11,150	10,750	400	17,100	17,100	-	2,500	-	2,500	30,750	66,497
Georgetown	375	375	-	-	-	-	-	-	-	375	3,460
Port Royal	-	-	-	-	-	-	-	-	-	-	1,500
Georgia											
Brunswick	-	-	-	-	-	-	-	-	-	-	3,047
Savannah	16,565	14,797	1,768	14,897	12,702	2,195	12,817	12,322	495	44,279	94,526
Florida											
Fort Pierce	69	-	69	-	-	-	-	-	-	69	1,789
Jacksonville	-	-	-	8,730	8,730	-	5,000	5,000	-	13,730	54,903
Miami	619	425	194	12,396	12,380	16	-	-	-	13,015	26,207
Palm Beach	2,804	2,259	545	150	150	-	4,957	4,955	2	7,911	10,870
Port Canaveral	3,379	3,379	-	-	-	-	4,916	4,916	-	8,295	10,825
Port Everglades	1,638	138	1,500	11,747	4,947	6,800	1,500	-	1,500	14,885	24,655
TOTAL SOUTH ATLANTIC	46,646 (31%)	40,533	6,113	74,555 (49%)	65,544	9,011	31,690 (21%)	27,193	4,497	152,891	375,692

TOTAL NEW	133,270
PERCENT	87%
TOTAL M&R	19,621
PERCENT	13%

Table 16
SOUTH ATLANTIC PORTS
PROPOSED PORT DEVELOPMENT EXPENDITURES
(1979-1983)
(Thousands of Dollars)

PORT NAME	GENERAL CARGO FACILITIES			SPECIALIZED GENERAL CARGO			BULK CARGO FACILITIES			GRAND TOTAL
	Total	New	M.R.	Total	New	M.R.	Total	New	M.R.	
North Carolina										
Morehead City	-	-	-	-	-	-	495	338	157	495
Wilmington	-	-	-	29,400	29,400	-	-	-	-	29,400
South Carolina										
Charleston	5,750	5,750	-	66,000	66,000	-	-	-	-	71,750
Georgetown	2,000	2,000	-	-	-	-	-	-	-	2,000
Port Royal	-	-	-	7,000	7,000	-	-	-	-	7,000
Georgia										
Savannah	30,657	30,657	-	17,000	17,000	-	4,392	4,392	-	52,049
Florida										
Miami	-	-	-	51,540	51,540	-	-	-	-	51,540
Palm Beach	5,081	3,981	1,100	-	-	-	-	-	-	5,081
Port Everglade	3,800	-	3,800	-	-	-	-	-	-	3,800
TOTAL SOUTH ATLANTIC	42,288 (21%)	42,388	4,900	170,940 (77%)	170,940	-	4,887 (2%)	4,730	157	223,115

TOTAL NEW	218,058
PERCENT	98%
TOTAL M&R	5,057
PERCENT	2%

Table 15 shows the port development expenditures for South Atlantic ports during 1973-1978 and Table 16 depicts proposed expenditures for these ports.

C. GULF COAST

The Gulf Coast ports reported spending a total of $626,765,000 for port development during the 1973-1978 period. Approximately 88 percent of this was for new construction, while 12 percent was for modernization and rehabilitation of existing facilities. The 1973-1978 total represents an annual average rate of $104,461,000, which is a sharp increase over the previous seven-year average of $25,968,000. Reported Gulf Coast expenditures since 1946 have now exceeded $1 billion.

The industrial development of the Gulf Coast continues to necessitate the movement of basic raw materials which in turn causes the ports of the Gulf Coast region to invest heavily in the development of liquid and dry bulk facilities. Reported data indicate that some $475.50 million or 76 percent of the total Gulf Coast development expenditures in the past six years was allocated to developing facilities for liquid and dry bulk cargoes. Gulf Coast ports are expected to continue to invest heavily in bulk facilities through 1983. Eighty-eight percent of the projected expenditures are in this category.

One of the reasons for the large percentage of expenditures in the bulk cargo category has been the development of offshore oil terminals. So far, $325 million has been invested in the development of an offshore deepwater oil terminal in the Gulf of Mexico, known as LOOP (the Louisiana Offshore Oil Port). In addition, $177 million of proposed expenditures have been allocated for the completion of LOOP. LOOP is intended to accommodate tankers too large for traditional Gulf Coast ports. When fully operational, LOOP should have a capacity of 34 million barrels/day. It is estimated that the first tanker will be able to discharge its cargo there by the end of 1980. The terminal is expected to be completed and in full operation before the end of 1981.

A similar project, known as SEADOCK, was proposed for off the Texas coast. However, the Texas SEADOCK project developed difficulties and was abandoned by the private interests involved. It has since been revived and established as the Texas Deepwater Port Authority, a State agency. If the project is undertaken, it is estimated that it will cost $1.2 billion. Of that amount, $800 million would be for construction with the remainder to be expended for engineering, design, spill insurance, legal fees, etc.

In addition, the Ports of Mobile, Tampa and Galveston reported significant expenditures for bulk cargo facilities.

Thirteen percent of the total Gulf Coast expenditures for port development in 1973-1978 were for specialized general cargo facilities. This is an increase from 11 percent reported in the previous survey. In actual dollar amounts, the Gulf Coast ports spent more than four times as much during the 1973-1978 period than they had between 1966-1972 on specialized general cargo facilities.

Table 17
GULF COAST PORTS
PORT DEVELOPMENT EXPENDITURES
(1973-1978)
(Thousands of Dollars)

PORT NAME	GENERAL CARGO FACILITIES			SPECIALIZED GENERAL CARGO			BULK CARGO FACILITIES			TOTAL	GRAND TOTAL 1946-1978
	Total	New	M.R.	Total	New	M.R.	Total	New	M.R.		
Florida											
Panama City	-	-	-	-	-	-	-	-	-	-	3,889
Pensacola	1,561	1,493	68	80	80	-	-	-	-	1,641	11,141
Tampa	9,703	9,703	-	809	658	151	26,036	26,036	-	36,548	89,130
Alabama											
Mobile	2,939	-	2,939	7,906	3,282	4,624	44,347	18,987	25,360	55,192	95,750
Mississippi											
Gulfport	6,552	6,552	-	1,300	1,300	-	4,400	4,400	-	12,252	18,452
Pascagoula	2,000	-	2,000	-	-	-	1,036	-	1,036	3,036	27,111
Louisiana											
Baton Rouge	-	-	-	-	-	-	-	-	-	-	46,269
LOOP*	-	-	-	-	-	-	325,000	325,000	-	325,000	325,000
Lake Charles	7,994	-	7,994	-	-	-	7,650	-	7,650	15,644	36,807
New Orleans	14,666	10,850	3,816	31,766	30,479	1,287	5,420	-	5,420	51,852	187,480
Texas											
Beaumont	9,299	7,185	2,114	607	-	607	1,507	-	1,507	11,413	34,708
Brownsville	1,305	1,227	78	-	-	-	959	760	199	2,264	12,010
Corpus Christi	9,116	8,300	816	-	-	-	7,990	6,990	1,000	17,106	61,104
Freeport	-	-	-	-	-	-	-	-	-	-	6,983
Galveston	3,100	-	3,100	-	-	-	37,000	37,000	-	40,100	84,174
Houston	2,939	2,000	939	36,241	36,241	-	5,594	5,954	48	44,774	116,953
Orange	1,383	731	652	-	-	-	-	-	-	1,383	3,438
Port Arthur	-	-	-	-	-	-	-	-	-	-	13,584
Port Isabel	-	-	-	-	-	-	-	-	-	-	33
Texas City	-	-	-	-	-	-	8,560	8,560	-	8,560	11,890
TOTAL GULF COAST	72,557 (11%)	48,041	24,516	78,709 (13%)	72,040	6,669	475,499 (76%)	433,279	42,220	626,765	1,185,906

*Offshore Oil Port

TOTAL NEW	553,360
PERCENT	88%
TOTAL M&R	73,405
PERCENT	12%

Table 18
GULF COAST PORTS
PROPOSED PORT DEVELOPMENT EXPENDITURES
(1979-1983)
(Thousands of Dollars)

PORT NAME	GENERAL CARGO FACILITIES			SPECIALIZED GENERAL CARGO			BULK CARGO FACILITIES			GRAND TOTAL
	Total	New	M.R.	Total	New	M.R.	Total	New	M.R.	
Florida										
Pensacola	4,000	1,800	2,200	-	-	-	-	-	-	4,000
Tampa	13,460	13,460	-	-	-	-	-	-	-	13,460
Alabama										
Mobile	12,215	-	12,215	-	-	-	8,750	-	8,750	20,965
Mississippi										
Gulfport	4,650	4,650	-	-	-	-	1,200	-	1,200	5,850
Louisiana										
LOOP*	-	-	-	-	-	-	177,000	177,000	-	177,000
Lake Charles	-	-	-	-	-	-	8,493	-	8,493	8,493
New Orleans	31,760	25,910	5,850	77,404	61,904	15,500	221,500	200,000	21,500	330,664
Texas										
Brownsville	-	-	-	-	-	-	12,525	11,050	1,475	12,525
Corpus Christi	-	-	-	-	-	-	19,100	19,100	-	19,100
Texas Deepwater*	-	-	-	-	-	-	1,200,000	1,200,000	-	1,200,000
Galveston	13,100	11,500	1,600	17,500	17,500	-	54,500	54,500	-	85,100
Houston	21,100	20,000	1,100	40,249	40,249	-	8,950	7,500	1,450	70,299
Texas City	-	-	-	-	-	-	11,000	11,000	-	11,000
TOTAL GULF COAST	100,285 (5%)	77,320	22,965	135,153 (7%)	119,653	15,500	1,723,018 (88%)	1,680,150	42,868	1,958,456

*Offshore Oil Port

TOTAL NEW	1,877,123
PERCENT	9%
TOTAL M&R	81,333
PERCENT	4%

This is an indication that Gulf ports are expanding and successfully competing for general cargoes, especially in the area of containerization. Since almost all of this funding is public, it would not have been expended without the confidence and support of the local political establishment.

The Port of Houston's emergence as a major container center is clearly indicated by their expenditures during 1973-1978 as $36 million of $44 million expended went to develop new specialized general cargo facilities. Proposed spending also emphasizes the importance of unitization to the port as most proposed funding is to complete the new container, ro/ro and barge facility at Barbours Cut.

New Orleans reversed its earlier pattern of expenditures, reporting over $31 million spent on specialized general cargo facilities. Combined with projected expenditures in this area, this is a definite indication of the growing importance of containerization and ro/ro to the port.

It is also significant to note that although containerization is booming, almost as much was spent on general cargo facilities as was spent for specialized general cargo facilities during the 1973-1978 period. Expenditures on conventional general cargo facilities represented 11 percent of the total.

The pattern of Houston and New Orleans as the major container ports continues to be observed as Beaumont, Corpus Christi, and other smaller Gulf ports continue expenditures on conventional general cargo facilities. The impact of containerization continues to be minimal in the Eastern Gulf. Tampa constructed five genral cargo berths during 1973-1978. The major proposed construction will be the addition of three new 600 foot general cargo docks. Funding is from private interests, port revenues and revenue bonds.

Table 17 lists the 1973-1978 expenditures for the Gulf Coast region. Table 18 indicates proposed expenditures for port development for 1979-1983. The data provided by the ports clearly indicate that they plan to continue to expand and to modernize and have confidence in their ability to aquire the necessary capital.

D. PACIFIC COAST

Port development expenditures for the 31 Pacific Coast ports included in the survey totaled over $330 million for the six-year period 1973-1978. Over 70 percent of these expenditures were for new facilities, while approximately 29 percent of the total was allocated to rehabilitate existing piers and terminals. The average annual rate of expenditures for the 1973-1978 period was $55,047,000 which represents an increase over the previous 7-year average of $44,096,000. Since 1946 over $1 billion has been invested for port development in this region.

The expenditures reported for the 1973-1978 period illustrate on-going trends in Pacific Coast port development. By far the largest single category of expenditures was for specialized general cargo facilities. Over half of the total expenditures in the region are in this category. The leading ports in this area were Oakland and Los Angeles, followed by San Francisco, Long Beach, Richmond, Seattle and Portland. Expenditures for bulk cargo and conventional general cargo facilities represented 25 percent and 19 percent, respectively of the total.

On a port-by-port basis starting with the ports of the Northwest, the ports of Washington spent substantial sums on new and rehabilitated conventional general cargo facilities. The Port of Everett expended $6 million on their Hewitt Avenue marine terminal and expects to spend $10 million on the Norton Avenue terminal before 1983. Longview spent approximately $4 million between 1973-1978 on conventional general cargo facilities but expects to shift investments to container handling equipment ($8 million) through 1983. Olympia will continue to upgrade conventional general cargo facilities with proposed investments over $8 million to supplement the $2 million expenditures spent between 1973 and 1978. Grays Harbor concentrated its expenditures for specialized general cargo facilities in Terminals 3 and 4. Future investments of Grays Harbor amounting to $8.5 million in Terminal 2 - Berth A will also be spent for facilities to handle specialized general cargo.

The major Washington ports of Seattle and Tacoma have invested the largest amount of money in port development. During 1973-1978, Tacoma invested in new and improved capability to accommodate breakbulk cargo and spent $16 million for the Continental Grain Terminal. Proposed expenditures in Tacoma will be in conventional and specialized general cargo facilities. Tacoma expects to spend $13.5 million for specialized general cargo facilities by 1983. The Port of Seattle evenly divided its total development expenditures during 1973-1978 between the provision of breakbulk and specialized general cargo facilities. Future investments for Seattle, however, show a massive investment in container facilities as the Port plans to spend over $58 million while committing just $5 million for traditional breakbulk facilities through 1983.

While spending just over $1 million for a container yard in 1978, the Port of Astoria, Ore., is planning to construct four new container berths for $23.5 million by 1981. Nine million dollars for bulk wood chip facilities was the only significant port investment during 1973-1978 in Coos Bay, Ore. A multi-use general cargo terminal is currently being planned in Coos Bay. Elsewhere in Oregon, the $60 million reported by the Port of Portland was the largest amount of development expenditures submitted by any single port on the Pacific Coast during 1973-1978. Half of this total went towards new and modernized grain elevators and docks. Proposed investments depict Portland's further commitments to containerization and export bulk cargo facilities.

The ports of California invested a total of $182.5 million in all types of port facilities during the 1973-1978 period. The ports of Sacramento and Stockton concentrated their investments in bulk cargo facilities. The San Francisco Bay areas ports of Oakland, Richmond and San Francisco centered their investments in the provision of container handling facilities. The Port of Oakland added some 10 container berths during the survey period and financed these expenditures at the Middle Harbor and Outer Harbor Terminals with revenue bonds. Proposed expenditures in Oakland total $52.5 million and will again concentrate on container facilities with an additional automobile terminal and other general cargo handling capability. Across the Bay, the Port of San Francisco spent over $20 million on container facilities at Pier 94 and ro/ro facilities at Pier 80. San Francisco listed a planned expenditure of $35 million for a coal handling facility at Pier 94 North. The newest container port in the Bay area is the Port of Richmond.

Table 19
PACIFIC COAST PORTS
PORT DEVELOPMENT EXPENDITURES
(1973-1978)
(Thousands of Dollars)

PORT NAME	GENERAL CARGO FACILITIES			SPECIALIZED GENERAL CARGO			BULK CARGO FACILITIES			TOTAL	GRAND TOTAL
	Total	New	M.R.	Total	New	M.R.	Total	New	M.R.		1946-1978
California											
Antioch	-	-	-	-	-	-	-	-	-	-	1,000
Benicia	988	-	988	-	-	-	-	-	-	988	988
Hueneme	-	-	-	-	-	-	-	-	-	-	6,899
Humbolt Bay	-	-	-	-	-	-	-	-	-	-	560
Long Beach	4,668	-	4,668	21,416	19,246	2,170	13,639	-	13,639	39,723	236,197
Los Angeles	500	-	500	32,371	31,055	1,316	3,217	-	3,217	36,088	170,436
Oakland	600	-	600	48,042	39,542	8,500	-	-	-	48,642	99,543
Redwood City	-	-	-	-	-	-	-	-	-	-	1,694
Richmond	2,000	-	2,000	19,000	19,000	-	1,815	1,000	815	22,815	27,543
Sacramento	-	-	-	-	-	-	6,000	6,000	-	6,000	25,355
San Diego	-	-	-	-	-	-	-	-	-	-	35,864
San Francisco	5,911	-	5,911	21,959	13,929	8,030	-	-	-	27,870	92,510
Stockton	-	-	-	-	-	-	497	-	497	497	12,443
Ventura	-	-	-	-	-	-	-	-	-	-	1,398
Oregon											
Astoria	-	-	-	1,042	1,042	-	-	-	-	1,042	1,428
Coos Bay	-	-	-	-	-	-	9,000	4,000	5,000	9,000	9,705
Portland	11,500	11,500	-	18,100	18,100	-	31,000	17,000	14,000	60,600	105,679
Washington											
Anacortes	-	-	-	-	-	-	-	-	-	-	1,470
Bellingham	200	-	200	-	-	-	200	-	200	400	6,648
Everett	6,000	6,000	-	-	-	-	-	-	-	6,000	11,543
Grays Harbor	-	-	-	2,720	2,720	-	-	-	-	2,720	12,823
Kalama	-	-	-	-	-	-	150	-	150	150	150
Longview	3,868	2,010	1,858	687	687	-	-	-	-	4,555	16,281
Olympia	2,247	-	2,247	-	-	-	-	-	-	2,247	3,650
Pasco	-	-	-	-	-	-	-	-	-	-	125
Port Angeles	-	-	-	-	-	-	-	-	-	-	1,101
Seattle	18,090	2,734	15,356	18,857	17,178	1,679	-	-	-	36,947	136,876
Tacoma	8,000	5,000	3,000	-	-	-	16,000	16,000	-	24,000	53,333
Vancouver	-	-	-	-	-	-	-	-	-	-	1,105

Table 19 (cont.)
PACIFIC COAST PORTS
PORT DEVELOPMENT EXPENDITURES
(1973-1978)
(Thousands of Dollars)

PORT NAME	GENERAL CARGO FACILITIES Total	New	M.R.	SPECIALIZED GENERAL CARGO Total	New	M.R.	BULK CARGO FACILITIES Total	New	M.R.	TOTAL	GRAND TOTAL 1946-1978
Willapa Harbor	-	-	-	-	-	-	-	-	-	-	493
TOTAL PACIFIC COAST	64,572 (19%)	27,244	37,328	184,194 (56%)	162,499	21,695	81,518 (25%)	44,000	37,518	330,284	1,074,840

TOTAL NEW	233,743
PERCENT	71%
TOTAL M&R	96,541
PERCENT	29%

Table 20
PACIFIC COAST PORTS
PROPOSED PORT DEVELOPMENT EXPENDITURES
(1979-1983)
(Thousands of Dollars)

PORT NAME	GENERAL CARGO FACILITIES			SPECIALIZED GENERAL CARGO			BULK CARGO FACILITIES			GRAND TOTAL
	Total	New	M.R.	Total	New	M.R.	Total	New	M.R.	
California										
Long Beach	16,010	6,500	9,510	62,610	18,760	43,850	190,600*	146,400	44,200	269,200*
Los Angeles	13,090	12,975	115	56,546	51,325	5,221	5,566	-	5,556	75,202
Oakland	16,250	10,250	6,000	36,250	36,250	-	-	-	-	52,500
Richmond	-	-	-	22,350	22,000	350	5,500	-	5,500	27,850
Sacramento	-	-	-	-	-	-	10,000	6,500	3,500	10,000
San Francisco	-	-	-	-	-	-	35,000	35,000	-	35,000
Stockton	133	-	133	117	-	117	4,600	4,500	100	4,850
Oregon										
Astoria	-	-	-	23,500	23,500	-	3,000	-	3,000	26,500
Coos Bay	10,000	10,000	-	10,000	10,000	-	-	-	-	20,000
Portland	5,000	5,000	-	12,000	12,000	-	39,800	38,000	1,800	56,800
Washington										
Anacortes	1,500	1,500	-	-	-	-	-	-	-	1,500
Everett	10,000	10,000	-	-	-	-	-	-	-	10,000
Grays Harbor	-	-	-	8,500	8,500	-	-	-	-	8,500
Kalama	-	-	-	-	-	-	300	-	300	300
Longview	-	-	-	8,000	8,000	-	-	-	-	8,000
Olympia	8,410	-	8,410	-	-	-	-	-	-	8,410
Seattle	5,550	5,000	500	58,523	57,751	722	-	-	-	64,073
Tacoma	6,650	5,000	1,650	13,500	10,500	3,000	-	-	-	20,150
TOTAL PACIFIC COAST	92,593 (13%)	66,225	26,368	311,896 (45%)	258,586	53,310	294,356 (42%)	230,400	63,956	698,845

TOTAL NEW	555,211
PERCENT	79%
TOTAL M&R	143,634
PERCENT	21%

* Includes $120 million for the SOHIO Terminal Project which has been abandoned since survey was undertaken.

Container Terminal #3 in Richmond cost $19 million which was financed by revenue bonds. Additional container facility investments are proposed in Richmond.

The Southern California ports of Long Beach and Los Angeles continue to heavily invest in all types of cargo handling facilities. Long Beach has invested $5 million to modernize breakbulk facilities, $21.4 million for new and altered specialized general cargo facilities and $13.6 to upgrade coke and grain terminals. Massive investments in the future are planned by the Port of Long Beach. Included in the total $269 million proposed expenditures is the SOHIO Terminal project which has been abandoned since this survey was undertaken. The majority of expenditures by the Port of Los Angeles during 1973-1978 were invested in container facilities. Expected development expenditures by Los Angeles will also concentrate on specialized general cargo facilities through 1983.

Table 19 presents a port-by-port breakdown of expenditures by type of cargo facility for the Pacific Coast during 1973-1978. Table 20 gives a breakdown of the proposed port development expenditures for 1979-1983.

E. ALASKA, HAWAII AND PUERTO RICO

Reported expenditures for port development in Alaska, Hawaii and Puerto Rico for the 1973-1978 period totaled over $45,061,000, bringing the post World War II total to over $200 million. Seventy-eight percent of the 1973-1978 expenditures were for new construction, while twenty-two percent were for modernization and rehabilitation of existing facilities.

Alaska

Anchorage was the only port in Alaska to respond to our survey. The port has undertaken a significant capital expansion program, and the growth of this relatively new port over the past 12-years has been phenomenal. Most of the expenditures have been for specialized general cargo facilities. Since 1966, over $21 million has been invested in this type of facility. Over $15 million was invested in the 1973-1978 period alone. Additional expenditures were also reported for modernization and rehabilitation of existing bulk cargo facilities. These expenditures are indicated in Tables 21 and 22.

Hawaii

With over $5 million in reported expenditures, Honolulu continues to lead Hawaiian ports in overall expenditures since World War II. New construction at the port has centered around containerization. Over $2.7 million was reported invested in new specialized general cargo facilities during the 1973-1978 period, while various modernization projects at Honolulu for specialized general cargo facilities involved expenditures in excess of $1 million. Although no new general cargo facilities were constructed, the port did spend over $1 million to modernize existing facilities. An additional $11 million -- not included in our totals -- was spent by the State to acquire some 16.152 acres of waterfront land for future port development.

Table 21
ALASKA, HAWAII AND PUERTO RICO PORTS
PORT DEVELOPMENT EXPENDITURES
(1973-1978)
(Thousands of Dollars)

PORT NAME	GENERAL CARGO FACILITIES			SPECIALIZED GENERAL CARGO			BULK CARGO FACILITIES			TOTAL	GRAND TOTAL 1946-1978
	Total	New	M.R.	Total	New	M.R.	Total	New	M.R.		
Alaska											
Anchorage	-	-	-	15,754	12,010	3,744	500	-	500	16,254	35,415
Juneau	-	-	-	-	-	-	-	-	-	-	37
Kodiak	-	-	-	-	-	-	-	-	-	-	6,234
Seward	-	-	-	-	-	-	-	-	-	-	22,233
Whittier	-	-	-	-	-	-	-	-	-	-	6,080
Hawaii											
Hilo	-	-	-	991	-	991	8	-	8	999	5,884
Honolulu	1,134	-	1,134	4,135	2,795	1,340	55	-	55	5,324	36,980
Kahului	118	-	118	922	-	922	13	-	13	1,053	3,279
Kaunakakai	-	-	-	-	-	-	-	-	-	-	124
Kawaihae	19	-	19	-	-	-	-	-	-	19	3,198
Nawiliwili	14	-	14	306	-	306	6	-	6	326	1,978
Port Allen	-	-	-	-	-	-	-	-	-	-	10
Puerto Rico											
Aguadilla	-	-	-	-	-	-	-	-	-	-	2,100
Aguirre	-	-	-	-	-	-	-	-	-	-	921
Guayonilla	-	-	-	-	-	-	-	-	-	-	9,370
Las Mareas	-	-	-	-	-	-	-	-	-	-	6,890
Mayaquez	-	-	-	-	-	-	-	-	-	-	6,449
Ponce	-	-	-	-	-	-	-	-	-	-	5,318
San Juan	1,745	1,000	745	18,113	18,000	113	1,228	1,228	-	21,086	45,721
Yabucoa	-	-	-	-	-	-	-	-	-	-	15,275
TOTAL ALASKA, HAWAII, PUERTO RICO	3,030 (7%)	1,000	2,030	40,221 (89%)	32,805	7,416	1,810 (4%)	1,228	582	45,061	213,496

TOTAL NEW	35,033
PERCENT	78%
TOTAL M&R	10,028
PERCENT	22%

Table 22
ALASKA, HAWAII AND PUERTO RICO
PROPOSED PORT DEVELOPMENT EXPENDITURES
(1979-1983)
(Thousands of Dollars)

PORT NAME	GENERAL CARGO FACILITIES			SPECIALIZED GENERAL CARGO			BULK CARGO FACILITIES			GRAND TOTAL
	Total	New	M.R.	Total	New	M.R.	Total	New	M.R.	
Alaska	-	-	-	-	-	-	-	-	-	-
Hawaii										
Hilo	3,680	-	3,680	-	-	-	-	-	-	3,680
Honolulu	-	-	-	22,056	22,056	-	-	-	-	22,056
Kahului	-	-	-	8,090	2,100	5,990	-	-	-	8,090
Barbers Point	-	-	-	3,550	3,550	-	-	-	-	3,550
Puerto Rico										
Las Mareas	-	-	800	-	-	-	-	-	-	800
San Juan	1,363	1,000	363	-	-	-	-	-	-	1,363
TOTAL ALASKA, HAWAII AND PUERTO RICO	5,993 (15%)	1,000	4,993	33,696 (85%)	27,706	5,990	0	0	0	39,689

TOTAL NEW	28,706
PERCENT	72%
TOTAL M&R	10,983
PERCENT	28%

Hilo also reported significant expenditures for a Hawaiian port in the 1973-1978 period. Most of this was for specialized general cargo facilities. Pier 1 in Hilo was modified to accommodate ro/ro vessels which are expected to make weekly calls to Hilo from the mainland, eliminating much of the present transshipment of containers through Honolulu.

As the number of shipping containers passing through Kahului Harbor continues to increase, plans are being made for an estimated $8 million to be spent on specialized general cargo facilities in the 1979-1983 period.

The port of Barbers Point was added to our survey for the first time, and reports proposed expenditures of over $3.5 million for new specialized general cargo facilities in 1979-1983.

Reported and proposed expenditures for Hawaii are included in Tables 21 and 22.

Puerto Rico

A total of $1,745,000 was spent by the Port Authority of Puerto Rico in remodeling conventional general cargo piers in San Juan. During the same 1973-1978 period, over $18 million was spent in San Juan on the construction and improvement of container and ro/ro facilities. A bulk cargo facility was also constructed for $1.2 million. Proposed expenditures for conventional general cargo facilities in Puerto Rico total $2.1 million for 1979-1983. These expenditures are included in Tables 21 and 22.

F. GREAT LAKES

According to the information submitted by 14 Great Lakes ports, port development expenditures totaled $189,864,000 from 1973 through 1978. This six-year total has an average annual rate of $31,644,000 which represents a sharp increase over the previous seven-year average of $3.5 million. Fourty-three percent of the expenditures in the 1973-1978 period were for new facilities, while approximately fifty-seven percent of the total was allocated to rehabilitate existing piers and terminals. The total Great Lakes expenditures for port development programs since 1946 is $465,506,326.

In this most recent survey the Great Lakes ports reported concentrating almost 95 percent of their expenditures on bulk cargo facilities. Over 76 percent of the projected expenditures were also in this category. This represents a significant change from earlier surveys which reported minimal expenditures devoted to bulk-handling facilities as compared to the allotment for conventional general cargo facilities. This change reflects the growth in bulk cargo trade in recent years.

The majority of the liquid and dry bulk developments are in conversion of present facilities to conveyor systems or construction of new facilities capable of applying the conveyor technology to ship loading or unloading. While the initial cost for this type of system is high, there is a strong belief, and commitment by some ports, that advantages achieved through a more rapid loading rate in tons per hour will more than offset this initial cost. The twin ports of Duluth/ Superior, which reported spending the largest amount during this time period, devoted most of the $133.5 million spent to the construction of the Superior coal loading facility and the conversion of Burlington Northern's taconite loading facility to a conveyor system. Another $30 million in expenditures is also projected within the next five-years for another coal loading facility and rehabilitation of grain elevators.

The Niagra Frontier Transportation Authority invested approximately $1.8 million during this period mostly in maintenance, repair and renovations of current facilities. Projections include a $5 million expenditure for a coal unloading facility currently under study. The port of Milwaukee also spent $2 million during this survey period on maintenance, repair and renovation of existing facilities and projects a $2.1 million investment over the next 5 years including construction of a barge terminal and new bulk terminals.

The small port of Silver Bay, Minnesota, like other ports, such as Marquette and Monroe, is planning a $2.5 million expenditure for port modernization of bulk ore loading facilities. Marquette, for example, spent $4.5 million for a coal unloading facility during this period, while Monroe spent $4 million also for a coal unloading facility and projects another $660,000 for maintenance and repair in the next five years.

The Indiana Port Commission continued to expand and improve the facilities at Burns Harbor and invested approximately $7 million during this survey period for refrigerated warehouse, new transit shed, dock extension, and liquid storage tanks. Another $20 million is projected for the next five years with the primary investment going towards construction of an $18 million grain elevator.

Several of the Ohio ports are reporting heavy capital investments during the survey period or in the near future. The port of Toledo has shown a $10 million investment in grain elevators during this period and project another $35 million for additional grain elevators in the next five years. The port of Lorain also has major capital expenditures either completed or in progress, including $18.5 million for construction of liquid storage tanks and modernization of ore unloading/ stockpiling dock-to-conveyor system. Another $18 million is projected to convert a coal dock to an ore unloading facility by 1980.

The ports of Ashtabula and Huron continued the trend in investment with $2.7 million and $.6 million, respectively. Ashtabula's investment was primarily in construction of a four-berth bulk cargo dock space and terminal equipment, while Huron's was all in the rehabilitation of an iron ore storage area. Ashtabula also projects another $1.8 million for the purchase of gantry cranes, widening the dock and cargo handling equipment.

Table 23
GREAT LAKES PORTS
PORT DEVELOPMENT EXPENDITURES
(1973-1978)
(Thousands of Dollars)

PORT NAME	GENERAL CARGO FACILITIES			SPECIALIZED GENERAL CARGO			BULK CARGO FACILITIES			TOTAL	GRAND TOTAL
	Total	New	M.R.	Total	New	M.R.	Total	New	M.R.		1946-1978
New York											
Buffalo	40	40	-	-	-	-	1,722	440	1,282	1,762	8,277
Oswego	-	-	-	-	-	-	-	-	-	-	7,560
Ogdensburg	-	-	-	-	-	-	-	-	-	-	2,675
Rochester	-	-	-	-	-	-	-	-	-	-	350
Minnesota											
Duluth/Superior	-	-	-	-	-	-	133,500	46,500	87,000	133,500	168,076
Port Dolomite	-	-	-	-	-	-	-	-	-	-	3,000
Taconite Harbor	-	-	-	-	-	-	-	-	-	-	10,000
Wisconsin											
Green Bay	-	-	-	-	-	-	100	100	-	100	3,565
Kenosha	-	-	-	-	-	-	-	-	-	-	1,048
Milwaukee	640	-	640	165	-	165	1,344	-	1,344	2,149	23,192
Manitowoc	-	-	-	-	-	-	-	-	-	-	2,050
Sheboygan	-	-	-	-	-	-	-	-	-	-	387
Sturgeon Bay	-	-	-	-	-	-	-	-	-	-	300
Two Rivers	-	-	-	-	-	-	-	-	-	-	136
Illinois											
Chicago	-	-	-	-	-	-	-	-	-	-	66,730
Michigan											
Detroit	-	-	-	1,200	-	1,200	-	-	-	1,200	18,169
Ludington	-	-	-	-	-	-	-	-	-	-	2,050
Marquette	-	-	-	-	-	-	4,500	4,500	-	4,500	4,500
Monroe	-	-	-	-	-	-	4,000	4,000	-	4,000	4,123
Muskegon	-	-	-	-	-	-	-	-	-	-	990
Port Huron	-	-	-	-	-	-	-	-	-	-	600
South Haven	-	-	-	-	-	-	-	-	-	-	6
Ohio											
Ashtabula	-	-	-	-	-	-	2,690	2,570	120	2,690	2,690
Cleveland	2,079	2,079	-	-	-	-	-	-	-	2,079	12,446
Conneaut	-	-	-	-	-	-	-	-	-	-	500
Huron	-	-	-	-	-	-	600	-	600	600	16,060
Lorain	-	-	-	-	-	-	18,500	3,500	15,000	18,500	28,500
Toledo	-	-	-	-	-	-	10,000	10,000	-	10,000	58,997

Table 23 (cont.)
GREAT LAKES PORTS
PORT DEVELOPMENT EXPENDITURES
(1973-1978)
(Thousands of Dollars)

PORT NAME	GENERAL CARGO FACILITIES			SPECIALIZED GENERAL CARGO			BULK CARGO FACILITIES			TOTAL	GRAND TOTAL 1946-1978
	Total	New	M.R.	Total	New	M.R.	Total	New	M.R.		
Pennsylvania Erie	429	-	429	1,359	974	385	-	-	-	1,788	7,833
Indiana Burns Harbor	3,127	3,053	74	869	599	270	3,000	3,000	-	6,996	10,696
TOTAL GREAT LAKES	6,315 (3%)	5,172	1,143	3,593 (2%)	1,573	2,020	179,956 (95%)	74,610	105,356	189,864	465,506

TOTAL NEW	81,355
PERCENT	43%
TOTAL M&R	108,519
PERCENT	57%

Table 24
GREAT LAKES PORTS
PROPOSED PORT DEVELOPMENT EXPENDITURES
(1979-1983)
(Thousands of Dollars)

PORT NAME	GENERAL CARGO FACILITIES			SPECIALIZED GENERAL CARGO			BULK CARGO FACILITIES			GRAND TOTAL
	Total	New	M.R.	Total	New	M.R.	Total	New	M.R.	
New York										
Buffalo	27	-	27	-	-	-	5,000	5,000	-	5,027
Minnesota										
Duluth/										
Superior	-	-	-	-	-	-	30,000	30,000	-	30,000
Silver Bay	-	-	-	-	-	-	2,500	-	2,500	2,500
Wisconsin										
Milwaukee	120	-	120	900	900	-	1,132	370	762	2,152
Illinois										
Chicago	-	-	-	7,500	-	7,500	-	-	-	7,500
Michigan										
Detroit	-	-	-	9,000	9,000	-	-	-	-	9,000
Monroe	-	-	-	-	-	-	660	660	-	660
Ohio										
Cleveland	-	-	-	12,847	-	12,847	-	-	-	12,847
Lorain	-	-	-	-	-	-	18,000	-	18,000	18,000
Toledo	-	-	-	-	-	-	35,250	35,250	-	35,250
Ashtabula	-	-	-	-	-	-	1,800	-	1,800	1,800
Pennsylvania										
Erie	2,000	2,000	-	-	-	-	5,000	-	5,000	7,000
Indiana										
Burns Harbor	5,250	5,250	-	-	-	-	20,900	20,900	-	26,150
TOTAL GREAT LAKES	7,397 (5%)	7,250	147	30,247 (19%)	9,900	20,347	120,242 (76%)	92,180	28,062	157,886

TOTAL NEW	109,330
PERCENT	69%
TOTAL M&R	48,556
PERCENT	31%

The proposed construction of a $3.5 billion steel plant by U.S. Steel at Conneaut, Ohio will result in a sizable capital expenditure by that company to enable the port to accommodate 1,000 foot bulk carriers. Additional coal and ore unloading and storage space will also be required to service this major steel complex.

While the Great Lakes, as a region have not invested heavily in specialized cargo facilities, it should be noted that several ports -- notably Erie and Detroit -- have made some investments in this category. Erie invested more than $1.3 million in specialized general cargo facilities during the 1973-1978 period, including the purchase of two cranes. The port of Detroit, Michigan, reported $1.2 million spent on converting a coal dock to a container facility. Another $9 million is projected for the next five years to construct two specialized cargo berths at Riverview. Proposed expenditures for Chicago include a $10 million investment in specialized general cargo facilities at Iroquois Landing due to be completed in 1979-1980. Cleveland also plans a substantial allocation of funds for the development of specialized general cargo facilities in the 1979-1983 period.

Table 23 lists port development expenditures for the Great Lakes ports during the 1973-1978 period. Proposed expenditures for 1978-1983 are indicated in Table 24.

☆ U.S. GOVERNMENT PRINTING OFFICE · 1980 O—311-046 (10)

PENN STATE UNIVERSITY LIBRARIES
A0000712649 98